

surface opposite said lower surface, said lower surface of said plate being concave along a substantial portion of the longitudinal axis of said plate;

at least two bone screws each having a central longitudinal axis and being adapted to engage each of the at least two vertebral bodies, respectively, each of said bone screws having a leading end for insertion into the vertebral bodies and a trailing end opposite said leading end, said trailing end having at least one upper facing surface oriented toward said upper surface of said plate and a bottom surface opposite said at least one upper facing surface oriented toward said lower surface of said plate;

at least two bone screw receiving holes extending through said plate from said upper surface to said lower surface, at least a first of said bone screw receiving holes adapted to overlie a first of the vertebral bodies and at least a second of said bone screw receiving holes adapted to overlie a second of the vertebral bodies, each of said bone screw receiving holes being configured to prevent said bottom surface of said trailing end of said bone screw from protruding below said lower surface of said plate; and

a plurality of locking elements each adapted to lock to said plate only one each of said bone screws inserted into one each of said bone screw receiving holes, said locking elements each being coaxially engageable at least in part within only one of said bone screw receiving holes to retain said one of said bone screws to said plate, said locking elements each having an outer perimeter contacting at least a portion of the perimeter of one of said bone screw receiving holes, said locking elements each having an upper surface configured to cover at

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least a portion of said at least one upper facing surface of said bone screw, a lower surface opposite said upper surface, and a through-hole passing through said upper surface and said lower surface, said through-hole having a central longitudinal axis coaxial with a central longitudinal axis of one of said bone screw receiving holes.

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586. The plate system of claim 573, wherein said at least one upper facing surface of said trailing end of at least one of said bone screws is at least in part curved.

587. The plate system of claim 573, wherein said at least one upper facing surface of at least one of said bone screws is at least in part in a plane that crosses the central longitudinal axis of at least one of said bone screws.

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678. A plate system adapted for use in the anterior human cervical spine for contacting the anterior aspect of at least two cervical vertebral bodies, said plate system comprising:

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a plate having a longitudinal axis and a length sufficient to span a disc space and overlap portions of at least two adjacent vertebral bodies, said plate having a lower surface for placement against the vertebral bodies and an upper surface opposite said lower surface, said lower surface of said plate being concave along a substantial portion of the longitudinal axis of said plate;

at least two bone screws each having a central longitudinal axis and being adapted to engage each of the at least two vertebral bodies, respectively, each of said bone screws having a leading end for insertion into the vertebral bodies and a trailing end opposite said leading end, said trailing end having at least one upper facing surface oriented toward said upper surface of said plate and a

bottom surface opposite said at least one upper facing surface oriented toward said lower surface of said plate;

at least two bone screw receiving holes extending through said plate from said upper surface to said lower surface, at least a first of said bone screw receiving holes adapted to overlie a first of the vertebral bodies and at least a second of said bone screw receiving holes adapted to overlie a second of the vertebral bodies, each of said bone screw receiving holes being configured to prevent said bottom surface of said trailing end of said bone screw from protruding below said lower surface of said plate; and

63 a plurality of locking elements each adapted to lock to said plate only one each of said bone screws inserted into one each of said bone screw receiving holes, said locking elements each having a central longitudinal axis that passes through one of said bone screw receiving holes, respectively, to retain said one of said bone screws to said plate, said locking element each having an outer perimeter contacting at least a portion of the perimeter of one of said bone screw receiving holes, said locking elements each having an upper surface, a lower surface opposite said upper surface, and a through-hole passing through said upper surface and said lower surface, said through-hole having a central longitudinal axis coaxial with a central longitudinal axis of one of said bone screw receiving holes, and at least one of said locking elements being above said bottom surface of said trailing end of said bone screw.

63 681. The plate system of claim 678, wherein said at least one upper facing surface of said trailing end of at least one of said bone screws is at least in part curved. 148

692. The plate system of claim 678, wherein said at least one upper facing surface of at least one of said bone screws is at least in part in a plane that crosses the central longitudinal axis of at least one of said bone screws, said locking elements contacting said at least one upper facing surface of one of said bone screws.

713. A plate system adapted for use in the anterior human cervical spine for contacting the anterior aspect of at least two cervical vertebral bodies, said plate system comprising:

a plate having a longitudinal axis and a length sufficient to span a disc space and overlap portions of at least two adjacent cervical vertebral bodies, a lower surface for placement against the cervical vertebral bodies, said lower surface being concave along a substantial portion of the longitudinal axis of said plate, and an upper surface opposite said lower surface;

at least two bone screws each having a central longitudinal axis and being adapted to engage each of the at least two cervical vertebral bodies, respectively, each of said bone screws having a leading end for insertion into the cervical spine and a trailing end opposite said leading end, at least one of said bone screws proximate said trailing end having at least one upper facing portion oriented toward said upper surface of said plate and a lower portion opposite said at least one upper facing portion oriented toward said lower surface of said plate, said at least one upper facing portion including a contact surface area at least in part in a plane that crosses the central longitudinal axis of said bone screw;

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at least two bone screw receiving holes extending through said plate from said upper surface through said lower surface, at least a first of said bone screw receiving holes adapted to overlie a first of the cervical vertebral bodies and at least a second of said bone screw receiving holes adapted to overlie a second of the cervical vertebral bodies, each of said bone screw receiving holes having a central longitudinal axis and being adapted to receive one of said bone screws to attach said plate to the cervical spine; and

a plurality of locking elements each adapted to lock to said plate only one each of said bone screws inserted in one each of said bone screw receiving holes, said locking elements each contacting said contact surface area of only one of said bone screws so as to retain said one of said bone screws to said plate, said locking element contacting said contact surface without penetrating said bone screw.

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The plate system of claim 713, wherein said at least one upper facing portion of said trailing end of at least one of said bone screws is at least in part curved.

REMARKS

Prior to the further examination of the above-identified application claims 573, 586, 587, 678, 691, 692, 713, and 726 have been amended to further define Applicant's invention.

Entry and consideration of this Amendment prior to the further examination of the above-identified application is respectfully requested.